

THE AMERICAN SPECIES OF *TROCHOIDEUS*
(COLEOPTERA: ENDOMYCHIDAE)

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ABSTRACT

Redescriptions are given of *Trochoideus americanus* from the Gerstaecker "types", of *T. goudoti* from specimens taken near the type locality, of *T. peruvianus* from the holotype and other material, and of *T. coeloantennatus* from type material. Three new species are described: *T. boliviensis* from La Paz and Beni, Bolivia; *T. masoni* from Magdalena, Colombia; and *T. mexicanus* from Chiapas, Mexico.

Receipt of specimens of this genus during the past several years has led me to recall some material previously studied and to attempt a synopsis of the American species. This effort is handicapped by my inability to find type material of *T. americanus* or the single type of *T. goudoti*. My approach to this problem is noted in the discussions of these species. It seems to have been the custom hitherto to name all American material *T. americanus*.

Genus *Trochoideus* Westwood

Trochoideus Westwood 1833:673. Type species: *Paussus cruciatus* Dalman.

No generic synonyms have been combined with American specific names.

The general form of all species of this circumtropical genus is similar. Head broad, eyes hemispheric and protuberant. Pronotum widest at or in front of middle, front angles briefly obtuse, sides convergent basad, sometimes sinuately so, hind angles rectangular, disc roundly and rather strongly convex. In American species the base of pronotum has a triangular or parabolic impression at middle and the area within hind angles is transversely impressed. Elytra long, shoulders rounded, sometimes with a pale spot, sides subparallel or gradually convergent from anterior third. The mouthparts have been figured by Gerstaecker (1858: pl. 3, fig. 50, m, u, x). Labial palps large, last article cup-shaped. Front coxae subconical, contiguous. Middle coxae well separated, the cavity closed by epimeron. Hind coxae widely separated. Tarsi 4-jointed, unlobed in American species. Antenna short and stout, of 4-7 articles. In male (except *T. boliviensis*) antennomere 4 is bulbous, divided by suture into dorsal and ventral plates. The suture crosses dorsally near tip giving the appearance of a fifth article. Close study of the antenna of *T. desjardinsi* and *T. goudoti* shows this appearance to be due to great medial (anterior) expansion of antennomere 4, the expansion folded under by membranous hinge on the medial edge. The 2 plates are capable of some separation, opening distally and laterally (posteriorly).

The antennal modifications, recalling those of paussids, seem to be an adaptation to life with ants or termites. Three old-world species have been taken from ant or termite nests and records cited here indicate similar habits in the American species.

The material of this study has come from the Hungarian Museum of Natural History (MNM), the Museum für Naturkunde, Berlin (ZMB), the California Academy of Sciences (CAS), the Academy of Natural Sciences, Philadelphia (ANSP), the U.S. National Museum (USNM), the British Museum (BMNH) and the University of Alberta. Some years ago I compared specimens with the type of *T. peruvianus* in the Museum für Tierkunde, Dresden.

Key to American *Trochoideus*

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|----------|---|-------------------------------|
| 1. | Front femur with disto-ventral tooth, or antennomere 4 greatly enlarged (males) | 2 |
| 1'. | Front femur simple, antennomere 4 not inflated (females) | 8 |
| 2(1). | Pronotum with median sulcus | 3 |
| 2'. | Pronotum without median sulcus | 5 |
| 3(2). | Pronotum with percurrent lateral sulci | (3) <i>T. mexicanus</i> |
| 3'. | Pronotum with lateral sulci short or absent | 4 |
| 4(3'). | Antenna not swollen, front femur with tooth..... | (1) <i>T. boliviensis</i> |
| 4'. | Antenna swollen, article 3 quadrate | (2) <i>T. americanus</i> |
| 5(2'). | Antenna deeply hollowed beneath | (7) <i>T. coeloantennatus</i> |
| 5'. | Antenna flat beneath or nearly so..... | 6 |
| 6(5'). | Antennomere 3 strongly transverse (dorsal view) | (6) <i>T. masoni</i> |
| 6'. | Antennomere 3 more than ½ as long as wide | 7 |
| 7(6'). | Antennomere 4 decidedly convex above in long axis..... | (4) <i>T. peruvianus</i> |
| 7'. | Antennomere 4 very weakly convex above in long axis..... | (5) <i>T. goudoti</i> |
| 8(1'). | Pronotum with median sulcus | 9 |
| 8'. | Pronotum without median sulcus | 10 |
| 9(8). | Antenna of 4 articles, the last cylindric | (2) <i>T. americanus</i> |
| 9'. | Antenna of 5 articles, the last oval | (1) <i>T. boliviensis</i> |
| 10(8'). | Antennomere 3 subquadrate or transverse | 11 |
| 10'. | Antennomere 3 distinctly longer than wide | 12 |
| 11(10). | Antennomere 4 subequal to 3..... | (4) <i>T. peruvianus</i> |
| 11'. | Antennomere 4 much larger than 3 | (6) <i>T. masoni</i> |
| 12(10'). | Parasutural stria weak or absent..... | (7) <i>T. coeloantennatus</i> |
| 12'. | Parasutural stria strong | (5) <i>T. goudoti</i> |

1. *Trochoideus boliviensis* Strohecker, **new species**

Fig. 8, 9, 16

Brown below and above, most of antenna, head and pronotum blackish, legs and last antennomere brownish yellow. Length 3 mm. Pronotum widest in front of mid-

length, sinuately but not greatly narrowed to base, marginal bead rather narrow, hind angles rectangular, disc finely punctate and with a median sulcus, which widens basad into a triangular impression. Elytra 3X as long as and a little wider at base than pronotum, widest in anterior 1/3, thence gradually narrowed caudad, apices abruptly and separately rounded, parasutural stria fine but distinct. Male with front femur toothed on lower front edge and excavate behind tooth, front tibia wider beyond proximal 1/3, antenna of 4 articles, 1 stout but much longer than thick, 2 shorter and slenderer than 1, 3 much widened distad, 4 oval. Antenna of female with 5 articles, 1 and 2 similar to those of male, 3 slender, cylindrical, 4 short and widened to apex, 5 oval.

From structure of antenna I judge this to be the most primitive species of the genus.

Holotype male from Bolivia: La Paz, Teopote, along Rio Kaka, 19-XII-1966, Balogh, Mahunka, Zicsi, soil zoological expedition, singled No. 483 (MNM).

Allotype female from Bolivia: Beni, 2 km N Guayaramerin, 23-XI-1966, Balogh, Mahunka, Zicsi, beaten from vegetation, soil zoological expedition No. 398 (MNM).

Paratype male with same data as holotype (author).

2. *Trochoideus americanus* Buquet

Fig. 3, 4

Trochoideus americanus Buquet 1840:174; Gerstaecker 1858:387, pl. 3 fig. 33-35.

Dark reddish brown with yellow pubescence, pronotum, head and antenna darker, blackish, elytral umbones pale. Length 3.5-4 mm. Antenna of male (dorsal view) with article 1 subglobose, 2 much shorter, stout, 3 very wide, subquadrate, 4 as wide at base as 3, slightly widened distad, apex broadly rounded; of female with article 1 briefly clavate, 2 short, slightly transverse, 3 about 1½X as long as wide, 4 cylindrical, about as long as 1-3 combined. Pronotum widest before middle, sinuately narrowed to base, hind angles somewhat carinate, rectangular, median sulcus evanescent toward front. Elytra with prominent umbones and slightly tumid basad along suture, parasutural stria distinct.

No type material is known to me. The description above and figures are based on a pair of Gerstaecker "types" (ZMB 21888), the male with label "Columbia Mer."

3. *Trochoideus mexicanus* Strohecker, **new species**

Fig. 1, 5

Dark brown, shining, tip of antenna yellowish. Pubescence moderately thick, semi-erect. Length 4.5 mm. Antenna of male 1.3 mm long, article 1 strongly clavate (dorsal view), 2 much narrower, transverse, 3 rapidly widened from base, slightly wider than long, 4 as wide at base as 3, gradually wider to middle then evenly narrowed to the rounded apex. Pronotum 2/3 as long as wide, widest near mid-length, gradually but not sinuately narrowed to base, marginal bead rather wide, median sulcus percurrent, lateral sulci very conspicuous, reaching into anterior 1/4 of disc and continued as fine grooves into the front angles. Elytra 3X as long as pronotum, of usual form, densely and finely punctate, parasutural stria well impressed.

Holotype male from Mexico: Chiapas, San Quintin, 230 m, rain-forest, 5-20.II.1966, G. E. Ball, D. R. Whitehead (author).

Paratypes: 2 males with same data as holotype (USNM; author).

4. *Trochoideus peruvianus* Kirsch

Fig. 6, 7

Trochoideus peruvianus Kirsch 1876:116.

Dark brown to black, shining, tip of antenna and abdominal sternites paler, pu-

bescence yellowish brown. Length 3.5-4 mm. Antenna of male of typical structure, article 3 decidedly transverse, 4 rather bulbous, much rounded at sides and above. Antenna of female with 7 articles, the last 3 closely united and somewhat flattened. Pronotum widest in front of middle, strongly and sinuately narrowed to base, marginal bead narrow, disc strongly convex, finely punctate, without median sulcus but with the usual 3 basal impressions. Elytra wider at base than pronotum, subparallel, abruptly rounded to apex, parasutural stria complete.

Holotype male from Peru in Museum für Tierkunde, Dresden. Colombia: Cauca, 6 mi W of Cali, 1630 m, 20.III.1955, E. I. Schlinger, E. S. Ross, 7 males, female (CAS; author); Caldas, 2 mi W of Calarca, 1500 m, 8-III-1955, Schlinger, Ross, female (CAS).

5. *Trochoideus goudoti* Guérin

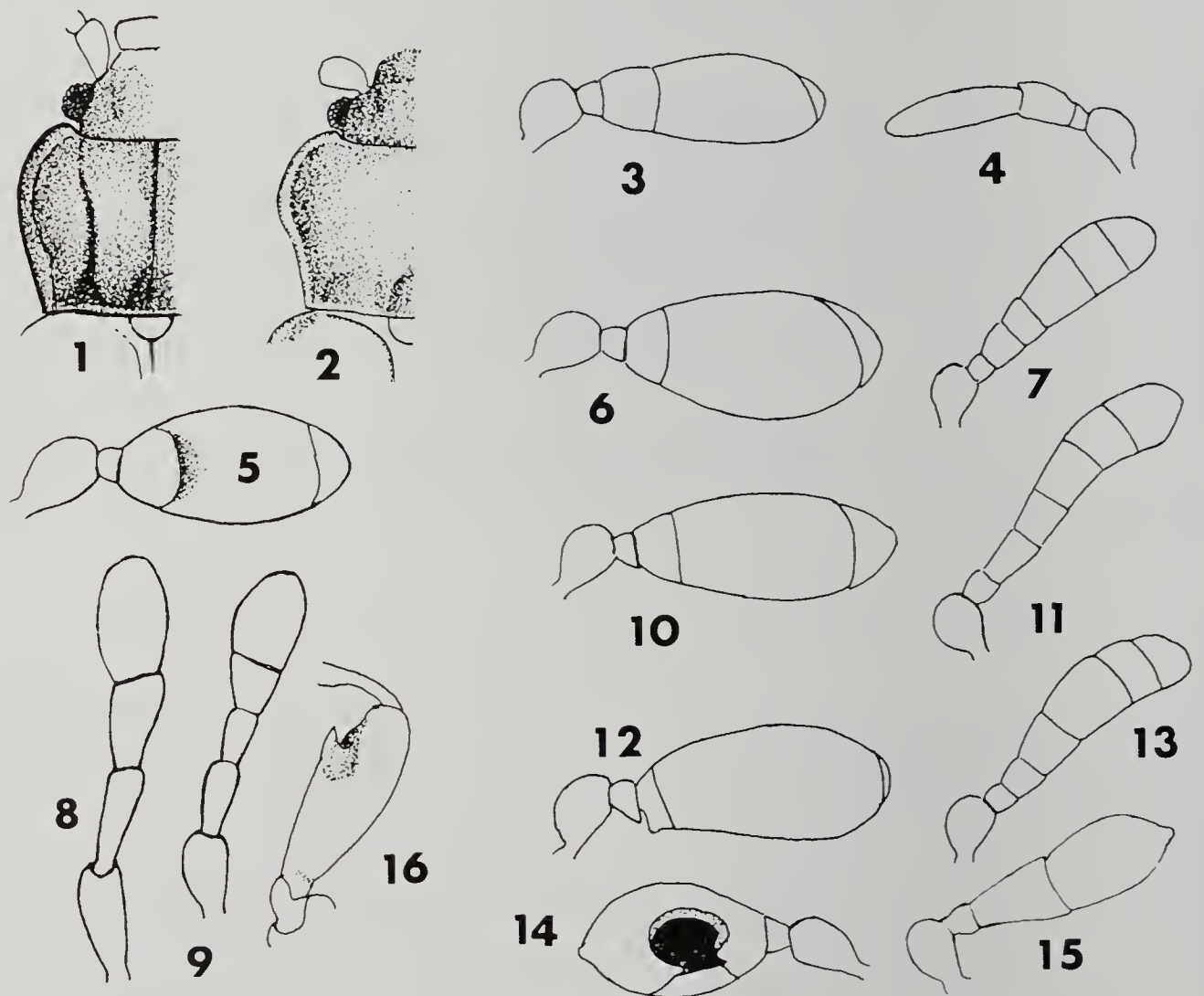
Fig. 2, 10, 11

Trochoideus goudoti Guérin 1857:191; Gerstaecker 1858:387, 415.

Trochoideus goudoti Csiki 1910:15.

Trochoideus americanus Gorham 1899:258 (not of Buquet).

Trochoideus americanus Strohecker 1953: pl. 2, fig. 20 (not of Buquet).



Figs. 1-16. 1) *Trochoideus mexicanus*-pronotum. 2) *T. goudoti*-pronotum. Figs. 3-15 antenna, dorsal view except 14 (ventral). 3) *T. americanus*-male. 4) *T. americanus*-female. 5) *T. mexicanus*-male. 6) *T. peruvianus*-male. 7) *T. peruvianus*-female. 8) *T. boliviensis*-male. 9) *T. boliviensis*-female. 10) *T. goudoti*-male. 11) *T. goudoti*-female. 12) *T. masoni*-male. 13) *T. masoni*-female. 14) *T. coeloantennatus*-male. 15) *T. coeloantennatus*-female. 16) *T. boliviensis*-front femur of male.

Very similar to *T. peruvianus* but with pronotum more broadly margined, antennomere 4 of male more elongate and feebly convex above in long axis, antennomere 3 of female longer than wide. Length 4 mm.

Described from a single female from "les montagnes appelées Tolima en Colombie". I have not been able to find this specimen. Gerstaecker suggested synonymy of *T. goudotii* with *T. americanus* but in a later note declared that he could not assign the Guérin name to the genus *Trochoideus*.

While it seems probable that Guérin, who had described the old-world species *T. desjardinsi*, gave the insect proper generic placement, the only clue to its specific identity is the description of the antenna, which is noted as having 5 articles, the last almost as long as the preceding 4 combined. In the females now under study the last 3 antennomeres are closely united and may appear as a single article. Some of the specimens cited below come from the area of the type locality of *T. goudoti* and are used to recognize the species.

Colombia: Cundinamarca, Finca Bella Vista nr. Sasaima, under rocks and leaves on ground, 7-IV-65, male; in leaf-soil compost dominated by large termite, 9-IV-65, female, P. R. Craig (CAS); 10 mi W of Villeta, 1660 m, 15-III-55, 2 females, E. I. Schlinger & E. S. Ross (CAS; author). Colombia, male, female (BMNH). USNM has 15 males, 20 females intercepted in Puerto Rico, Hoboken and San Francisco on orchids shipped from Colombia. Panama: Volcan de Chiriqui, 2000-4000 ft, male, Champion (BMNH). Costa Rica: Reventazon Rd., Juan Vinas, in bromeliad, female, P. P. Calvert; Turrialba, 650 m, male; Hamburgfarm, Reventazon Ebene, Limon, welkem Blatt von *Musa sapientum*, 26-X-34, female, F. Nevermann; Nevermann ex coll Zeledon, *Eutermes*, 2 males (USNM).

6. *Trochoideus masoni* Strohecker, **new species**

Fig. 12, 13

Venter and dorsum shining black, elytra with a reddish yellow spot on shoulder, legs, including coxae, last 2 sternites and antenna yellowish brown. Length 4 mm. Pronotum without median sulcus but with the usual 3 impressions at base, widest before mid-length, sinuately narrowed basad, marginal bead narrow, disc minutely punctate, somewhat rugosely punctate at sides. Elytra nearly 3X as long as and wider at base than pronotum, shoulders rounded, widest before middle, thence gradually narrowed with apices rounded together, disc finely punctate and with oblique grayish pubescence. This description drawn from holotype: another male and a female are callow and brown rather than black. Antenna of male with article 1 subglobose, 2 short, transverse and laterally acuminate, 3 strongly transverse, laterally angulate, 4 long-oval, broadly rounded at apex, the apparent fifth article very short. Antenna of female of 7 articles, the last 3 closely united and flattened.

Holotype male from Colombia: Magdalena, Sierra de S. Lorenzo, Cincinnati Trail, 4-6000 ft, 19-VII-1920, F. R. Mason (ANSP).

Allotype female with same data as holotype (ANSP).

Paratype male with same data (author).

7. *Trochoideus coeloantennatus* Strohecker

Fig. 14, 15

Trochoideus coeloantennatus Strohecker 1943:391, fig. 12, a-c.

Brown, antenna and legs yellowish. Paler specimens may show a yellowish stripe along suture. Length 3 mm. Pronotum roundly widest before middle, subsinuately narrowed to base, without median sulcus but with 3 basal impressions. Elytra but little wider at base than pronotum, gently widened to near middle,

thence gradually convergent. Antenna of male with first 2 articles as described for other species, articles 3 and 4 together forming a large bulb with nipple-like apex. The under surface of this bulb is deeply concave. Antenna of female with 4 articles, 1 and 2 as in male, 3 obconic, widened distad to 2X or more its basal width, 4 subequal in length to 3, widened toward apex, which ends in a small nipple-like eminence.

Holotype male (USNM 55892), allotype female and 2 paratype males from Argentina: Jujuy, El Quemado, G. L. Harrington, reported in 1943. Argentina: Jujuy, male (BMNH); Salta, Embarcation, 6-II-1950, R. Golbach, male (MNM).

ACKNOWLEDGEMENTS

This synopsis has been made possible by the generous help over many years of K. Delkeskamp, F. Hieke, and M. Uhlig, Museum für Naturkunde, Berlin; Zoltan Kaszab, Hungarian Museum, Budapest; R. Hertel, Museum für Tierkunde, Dresden; H. B. Leech and D. H. Kavanaugh, California Academy of Sciences; C. H. Dunn and the late Harold Grant, Philadelphia Academy; George Ball and D. R. Whitehead, University of Alberta; John Kingsolver, Systematic Entomology Laboratory, USDA, at the U. S. National Museum; and R. D. Pope, British Museum (Natural History).

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